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No. X.

SELF-SUPPLYING TYMPAN.

The SILVER ISIS MEDAL was presented to Mr. J. BURKITT, No. 4 Bartholomew Place, West Smithfield, for his Self-Supplying Tympan for a Printing Press; a Model of which has been placed in the Society's Repository.

4 Bartholomew Place, Bartholomew Close,
West Smithfield, March 3, 1838.

SIR,

BEING employed as overseer in the press department, I have frequently thrown out work in consequence of setting off and slurs, the slurs occasioned by the set-off sheet becoming damp, which induced me to try several experiments to prevent it, the result of which I take the liberty to offer to the notice of the Society of Arts, &c. The expense of the set-off sheets at present in use is 5*l.* a-year per press. The expense of the self-supplying tympans will be eight yards of calico at sixpence per yard, and two shillings washing per year; there will therefore be a saving of 4*l.* 14*s.*; and the set-off sheet, by being kept tight to the tympans, prevents slurs, and continually moving prevents setting off without any attention on the part of the men.

I am, Sir, &c. &c.

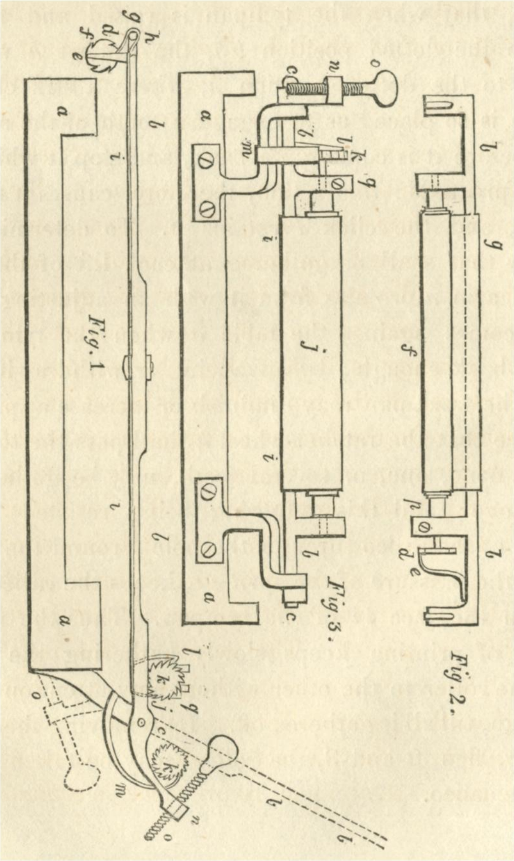
J. BURKITT.

A. AIKIN, Esq.
Secretary, &c. &c.

In making ready for printing, a *set-off sheet* of clean paper is laid on the tympan, and the sheet to be printed is placed on this to keep it clean. As sheets are printed on both sides, it follows that, on the second time of their going through the press, they must be laid with the printed side downwards on the set-off sheet. Paper cannot be printed unless it is damp, and therefore the set-off sheet will soon become as damp as those that are going through the press. When in this state, some of the ink will be transferred to the set-off sheet from the under side of that which is printing, by which the impression is rendered so much the fainter, and the next sheet is liable to be smeared by pressure against the set-off sheet. To prevent these injuries, the set-off sheet must be changed from time to time; so frequently, that, in the course of the year, the value of the paper consumed in set-off sheets amounts on an average to *5l.* for each press. The object of Mr. Burkitt is to save the greater part of this expense; and, at the same time, to avoid the slurs to which printing is liable. For this purpose he fixes two rollers, one at the top and the other at the bottom of the tympan. On the former he wraps six yards of calico, and draws the same over the face of the tympan, fastening the loose end to the lower roller. To this latter is attached a ratchet-wheel, which, by the action of a stop, is made to move the distance of one or more teeth every time that the tympan is thrown back; that is, for every sheet that is printed. The result of this is, that the calico will be slowly unwinding from the upper roller, and winding on the lower roller; and thus the calico, which is the substitute for the set-off sheet, will be removed from the face of the tympan before it has become so damp and smeared as to set off on the sheet of paper laid upon it.

Reference to the Figures.

Fig. 1 is a side view without the frisket, *a a* the table, *b b* the tympan jointed to the table at *c*. The first, or supplying roller is hid behind its reversed ratchet-wheel *d*, on which the spring *e* acts so as only to retard its motion. Fig. 2 is an end view of the tympan to shew this



first roller *f*, to which the calico is made fast, and then wrapped round; the other end is then passed over the end *g* of the tympan, and down again through a long opening *h*, fig. 1, to pass along the face *i i* of the tympan: it then turns up to the roller *j* behind, and on the same axis as the ratchet-wheel *k*. *l* is its spring-click: fig. 3 is the other end view to shew this gathering roller.

To effect the regular gathering of the calico on to the roller *j*, this latter is so placed on the back of the tympan, that when the tympan is raised and thrown back to the dotted position *b b*, the ratchet *k* will be carried to the dotted position *k*, where a stiff click or tooth *m* is so placed as to engage a tooth of the ratchet-wheel before it is come quite back, and stop it whilst the ratchet proceeds; this action, therefore, causes it to turn a little, and the click *l* retains it. To determine the quantity that shall be gathered at each lift of the tympan, an arm *n* projects from it with an adjusting screw *o* that comes against the table *a* when the tympan is thrown back enough; by advancing or withdrawing this screw, the workman may diminish or increase at pleasure the space that the ratchet-wheel *k* shall pass the tooth *m*, so that none, one, or several teeth, may be gathered at each move; and this gathering being resisted by the friction of the calico through the hole *h* round the end *g*, and by the pressure of the spring *e*, keeps the calico quite tight on the face *i i* of the tympan. Thus the regular process of printing keeps slowly gathering the calico from one roller to the other without any attention of the workman, till all is gathered off. By removing the screws *p* and *q*, figs. 2 and 3, the rollers may be taken out to shift the calico.